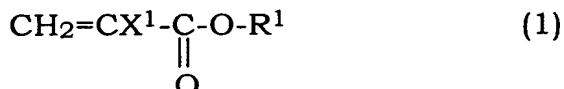


CLAIMS

1. A photofunctional optical material comprising:

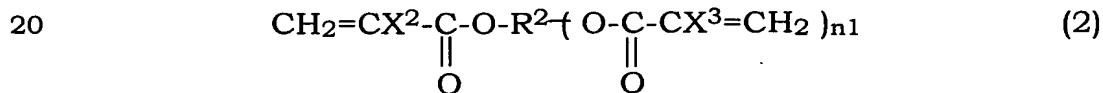
(A) a fluorine-containing acrylate polymer which is prepared by
5 polymerizing:

(a1) at least one selected from fluorine-containing acrylates
represented by the formula (1):



wherein X¹ is H, F, Cl, CH₃ or CF₃; R¹ is at least one selected from a monovalent hydrocarbon group which has 1 to 50 carbon atoms and may have ether bond and a monovalent fluorine-containing hydrocarbon group which has 1 to 50 carbon atoms and may have ether bond; at least either X¹ or R¹ contains fluorine atom,
15

(a2) at least one selected from polyfunctional acrylates represented by the formula (2):



wherein X² and X³ are the same or different and each is H, F, Cl, CH₃ or CF₃; n1 is an integer of 1 to 6; R² is a (n1 + 1)-valent organic group having 1 to 50 carbon atoms, and
25

(n) at least one selected from monomers being copolymerizable with said (a1) and (a2),

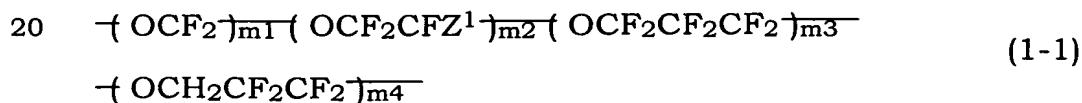
and contains a structural unit A1 derived from the monomer (a1), a structural unit A2 derived from the monomer (a2) and a structural unit N derived from the monomer (n) in amounts of from 20 to 99.9 % by mole, from 0.1 to 80 % by mole and from 0 to 60 % by mole,
5 respectively, and

(B) a rare earth metal compound,

in which (A) and (B) are contained in amounts of from 1 to 99.99 % by mass and from 0.01 to 99 % by mass, respectively.

10 2. The photofunctional optical material of Claim 1, wherein the fluorine content of the fluorine-containing acrylate polymer (A) is not less than 30 % by mass.

15 3. The photofunctional optical material of Claim 1 or 2, wherein R¹ in the fluorine-containing acrylate of the formula (1) constituting the fluorine-containing acrylate polymer (A) is a fluorine-containing alkyl group which has ether bond and contains a structure represented by the formula (1-1):

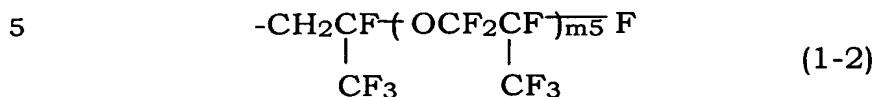


wherein Z¹ is F or CF₃; m₁, m₂, m₃ and m₄ are 0 or integers of 1 to 10 and m₁ + m₂ + m₃ + m₄ is an integer of 1 to 10.

25

4. The photofunctional optical material of Claim 3, wherein R¹ in the fluorine-containing acrylate of the formula (1) constituting

the fluorine-containing acrylate polymer (A) is a fluorine-containing alkyl group which has ether bond and is represented by the formula (1-2):



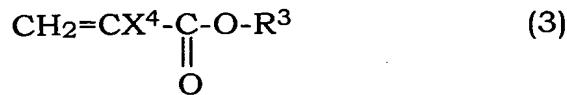
wherein m5 is an integer of 1 to 5.

10 5. The photofunctional optical material of any of Claims 1 to
4, wherein R² in the polyfunctional acrylate of the formula (2)
constituting the fluorine-containing acrylate polymer (A) is a (n +
1)-valent organic group having 3 to 50 carbon atoms in which a part or
the whole of hydrogen atoms may be substituted by fluorine atoms and
15 contains at least one moiety selected from moieties of aromatic
hydrocarbon structure which may have hetero atom and moieties of
aliphatic cyclic hydrocarbon structure which may have hetero atom.

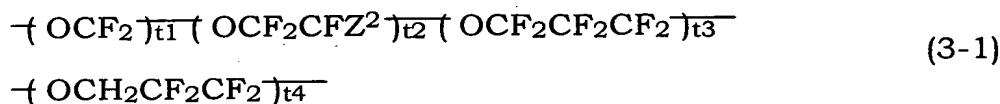
6. The photofunctional optical material of any of Claims 1 to
20 5, wherein the rare earth metal compound (B) is a rare earth metal
complex.

7. A composition which comprises:

(a3) at least one selected from fluorine-containing acrylates
25 represented by the formula (3):



wherein X^4 is H, F, Cl, CH_3 or CF_3 ; R^3 is a fluorine-containing alkyl group which has 2 to 50 carbon atoms and ether bond and contains a structure represented by the formula (3-1):

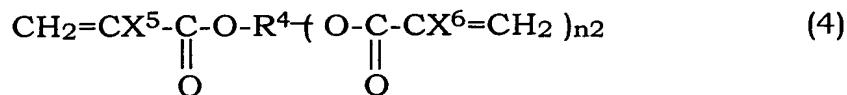


10

wherein Z^2 is F or CF_3 ; $t1$, $t2$, $t3$ and $t4$ are 0 or integers of 1 to 10 and $t1 + t2 + t3 + t4$ is an integer of 1 to 10,

(a4) at least one selected from polyfunctional acrylates represented by the formula (4):

15



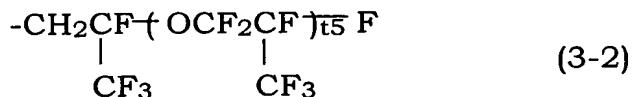
wherein X^5 and X^6 are the same or different and each is H, F, Cl, CH_3 or CF_3 ; $n2$ is an integer of 1 to 6; R^4 is a $(n2 + 1)$ -valent organic group having 1 to 50 carbon atoms, and

(b) a rare earth metal compound,

in which ((a3) + (a4)) is contained in an amount of from 1 to 99.99 % by mass and (b) is contained in an amount of from 0.01 to 99 % by mass and when the number of moles of (a3) plus the number of moles of (a4) is assumed to be 100, a molar ratio (a3)/(a4) is 20/80 to 99/1.

8. The composition of Claim 7, wherein R³ in the fluorine-containing acrylate of the formula (3) is a fluorine-containing alkyl group which has ether bond and is represented by the formula (3-2):

5



wherein t5 is an integer of 1 to 5.

10

9. The composition of Claim 7 or 8, which further contains (c) a photoradical generator in addition to the fluorine-containing acrylate (a3), polyfunctional acrylate (a4) and rare earth metal compound (b).

15

10. The composition of any of Claims 7 to 9, wherein the rare earth metal compound (b) is a rare earth metal complex.